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(54) Socket

(57) A socket for use with a ratchet wrench includes a front segment 12 and a rear segment 11. The front segment 12 has an axially extending bore shaped to fit snugly over the head of a threaded fastener in order to turn the fastener. The rear segment 11 adjacent to the front segment is adapted to be rotated by the pin of a ratchet wrench.

The outer lateral wall of the front segment 12 has at least two flat surfaces 122 which are diametrically opposed to each other in order that the socket may also be rotated by an open-ended spanner 30.

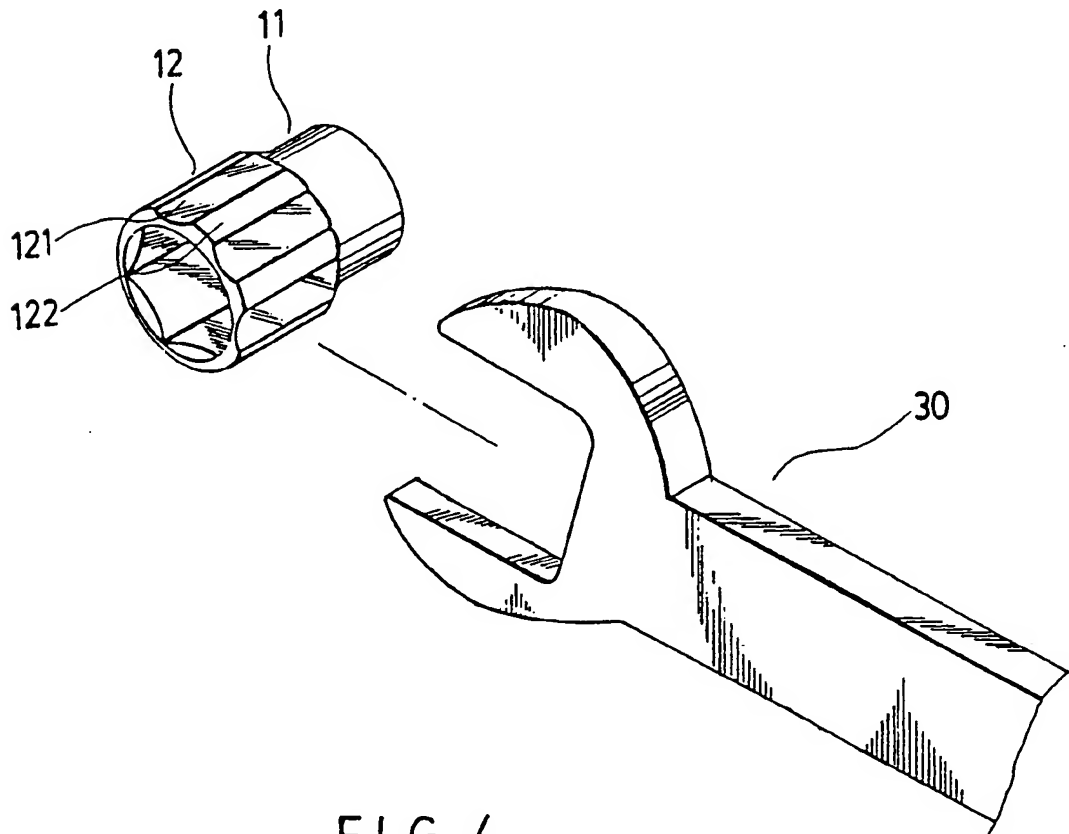


FIG. 4

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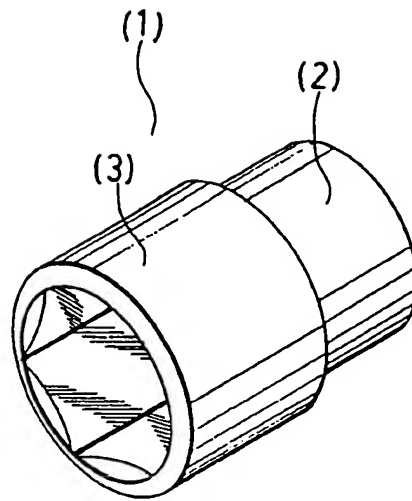


FIG. 1

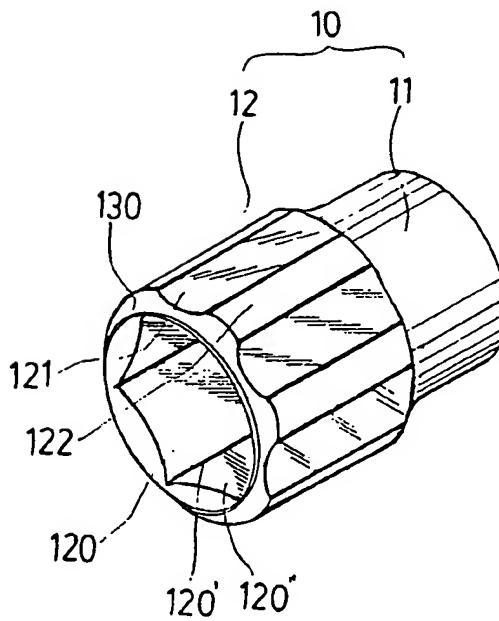


FIG. 2

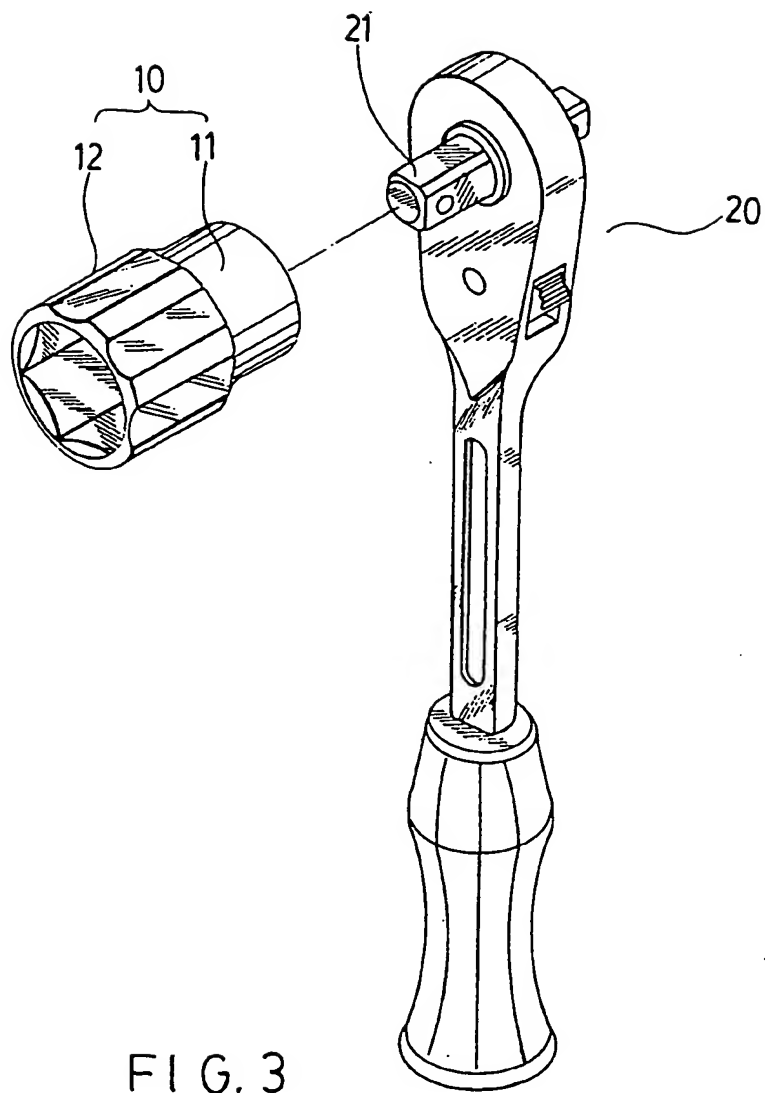


FIG. 3

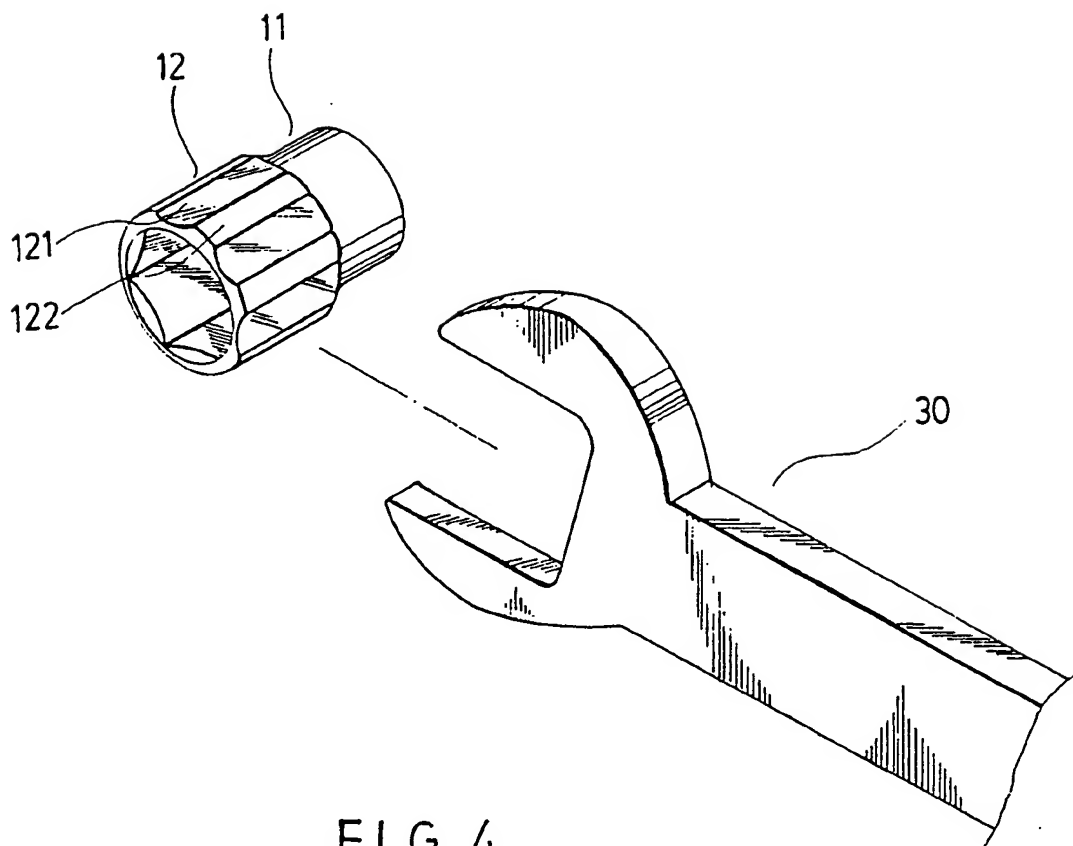


FIG. 4

## A SOCKET FOR USE WITH A RATCHET WRENCH

The present invention relates to a novel socket for use with a ratchet wrench, and more particularly to a socket with a novel shape which makes it more useful than conventional socket.

Referring to Fig.1, the conventional socket (1) for use with a ratchet wrench includes a front segment (3) and a rear segment (2). Said front segment (3) has an hexagonal axially extended bore to fit snugly over the head of a threaded fastener. Said rear segment (2) adjacent to said front segment (3) is adapted to be rotated by the pin of ratchet wrench (not shown). This configuration has many disadvantages. For example, provided a mechanic intended to use said socket to turn a bolt, it is difficult for him to use said socket to rotate the top end of a bolt by hand. He must use the ratchet wrench, because the lateral wall of a conventional socket is rounded and smooth and the mechanic often has greasy hands while at work. If this socket is accidentally dropped, it can very easily roll out of reach as a result of its cylinder-like figure. Supposed a work team uses a ratchet set(1 wrench, several sizes of sockets). Problems arise because with only the one wrench, which in the conventional configuration is necessary to rotate nuts or bolts, only one person can work on such things at one time. The novel socket is characterized by the outer lateral wall

of said front segment having at least two flat surfaces which are opposite to each other. The purpose of the present invention is to overcome the drawbacks of the prior art.

5       The object of the present invention is to provide a novel socket which is adapted for rotation by a ratchet wrench or other types of wrench (such as crescent or monkey wrenches), or by hand.

10       According to this invention, a socket for use with a ratchet wrench includes a front segment and a rear segment, said front segment having an axially extended bore shaped to fit snugly over the head of a threaded fastener in order to turn said fastener; said rear segment is adjacent to said front segment and is  
15       adapted to be rotated by the pin of a ratchet wrench; the outer lateral wall of said front segment has at least two flat surfaces which are opposed to each other.

20       Other features and advantages of the preferred embodiment of the invention will become clear as the invention is described in detail with reference to the following drawings, of which:

Fig. 1 is a perspective view of a socket according to the prior art;

25       Fig. 2 is a perspective view of a preferred embodiment of a socket according to the present invention;

Fig. 3 depicts a preferred embodiment as it is intended to engage the ratchet wrench according to the present invention;

Fig. 4 depicts a preferred embodiment as it is intended to engage a crescent wrench according to the present invention;

Referring to Fig. 2, a novel socket<sup>10</sup> for use with a ratchet wrench includes a front segment (12) having an axially extended bore which is shaped to fit snugly over a nut or the top end of a bolt, a rear segment (11) adjacent to said front segment and adapted to be rotated by the pin of a ratchet wrench. The bore (120) in said front segment (12) is hexagonal and extended axially, this configuration being the same as the prior art. The outer lateral wall of said front segment is formed by multiple pairs of flat surfaces (122) adjacent to axial recesses (121). The flat surfaces of each pair are diametrically opposite to each other. Each recess (121) is interposed between two successive flat surfaces (122) so that the recesses alternate with the flat surfaces. The corners (120') of said hexagonal axially extended bore (120) correspond to the locations of said flat surfaces (122) in order to increase the thickness of said outer lateral wall, reinforcing the socket structure. The sides (120'') of said hexagonal axially extended bore correspond to the locations of said recess (121). The free periphery of said front

segment (12) inclines outwardly and downwardly to form a sloped surface (130), in order to dull the edge between the flat surfaces (122) and recesses (121).

5 Referring to Fig. 3, a novel socket (10) is intended to engage the ratchet wrench, where the method of assembly is the same as the prior art.

Referring to Fig. 4, each pair of the flat surfaces (122) of novel socket <sup>10</sup> can be engaged and rotated by a crescent wrench (30) or other wrench (such as a monkey wrench, etc.).

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CLAIMS:

1. A socket for use with a ratchet wrench comprising:  
a front segment having an axially extended bore  
which is shaped to fit snugly over the head of a  
5 threaded fastener in order to turn said fastener; and  
a rear segment adjacent to said front segment and  
adapted to be rotated by the pin of a ratchet wrench,  
wherein the outer lateral wall of said front segment  
has at least two flat surfaces which are opposite to  
10 each other.
2. A socket as claimed in Claim 1, wherein said outer  
lateral wall of the front segment has multiple pairs of  
flat surfaces, the flat surfaces of each pair being  
diametrically opposite to each other.
- 15 3. A socket as claimed in Claim 2, wherein said outer  
lateral wall of the front segment has multiple pairs of  
axial recesses, each recess being interposed between  
two successive flat surfaces so that the recesses  
alternate with the flat surfaces.
- 20 4. A socket as claimed in Claim 3, wherein said flat  
surfaces include a dulled edge adjacent to the free  
periphery of said front segment.
5. A socket substantially as described hereinbefore  
with reference to Figs. 2 to 4.

6. Any features of novelty, taken singly or in combination, of the embodiments of the invention hereinbefore described with reference to Figures 2, 3 and 4 of the accompanying drawings.